Portland State University

EPP 224 – Restoration Design

Prerequisite: EPP 221

Course Summary: Research has found that successful stream restoration projects rely on an interdisciplinary team applying a fusion of stream mechanics principles and progressive design techniques, sound alternatives analysis, and fundamental engineering. This approach establishes and supports those stream processes that create and maintain channel form and associated habitats rather than trying to achieve a preconceived notion of the ideal form and function of the stream without recognizing the dynamic processes at work in that watershed.

In this course, participants will learn about a variety of approaches and steps for alternative analysis of stream restoration projects. Design principles will be demonstrated that integrate landscape scale considerations of geology, soils, and hydrology, with stream processes of hydraulics, sediment transport and geomorphology. Alternative analysis will focus on providing resiliency to stream systems in light of dominant stream processes overlain with biologic goals and human values. The overall focus will be on understanding best management practices in the river restoration context, use of process-based design approaches, and effective interdisciplinary collaboration. Classroom presentations and case study examples will be used to demonstrate implementation of a variety of design approaches and techniques. This course features instruction by regional restoration design experts.

Duration: 3 days.

Topics:

- Obtaining input and scientific information
- Formulating goals and objectives
- Placing alternatives in context of geomorphology, hydrology, channel geometry, sediment
- budget, sediment transport and management
- Gathering and analyzing basic data
- Design process and products
- Floodplain restoration techniques
- Stream channel restoration techniques
- Aquatic habitat restoration techniques
- Design drawings – conveying information
- Best management practices
- Environmental change and building resilience.

Fee: All instruction and program facilitation, resource manual, transportation to/from the field (if applicable), morning coffee/tea; a certificate of completion for this offering is provided.

Available Professional Credit: 2.4 CEU, 24 PDH.